

# Two years of the Water Quality Portal: improvements, lessons, and plans for the future

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# Portal Background

2003 USGS-EPA

Memorandum of Understanding

“Working with the National Water Quality Monitoring Council (NWQMC), [USGS and EPA] will develop a geospatial internet based query tool. This tool should be designed to facilitate the greatest possible sharing of data from all sources to all users...”



# Portal Background

- Launched in 2012 at NWQMC Conference
- Includes water-quality data from federal, state and tribal partners through the USGS NWIS & EPA STORET (and now USDA ARS STEWARDS) systems
- Based on WQX data format and convention (Water Quality Exchange)
- Organized to support broad regional and national assessments
- Updated every night from NWIS; every week from STORET (and STEWARDS!)
- Serve over 220 million samples from 2.1 million sites



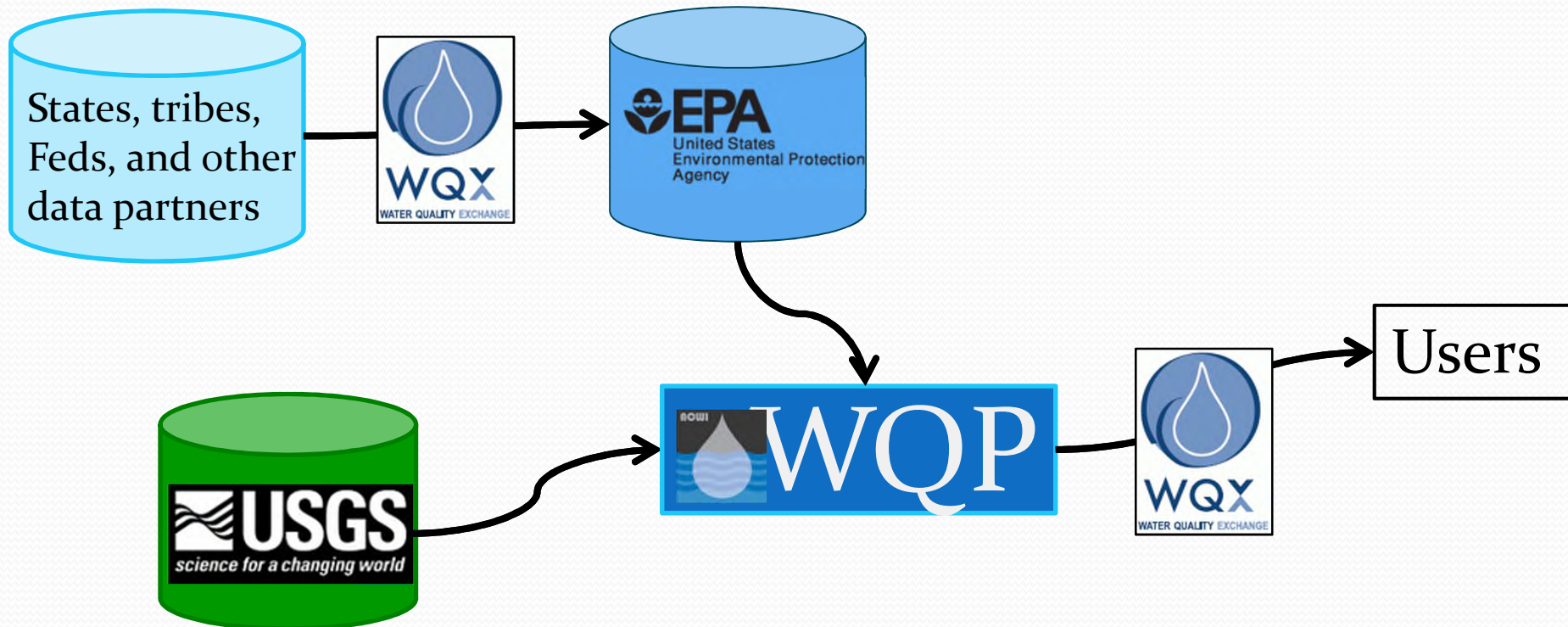
# Water Quality Data Exchange (WQX)

- Launched in 2007 to provide a format for submitting water quality data to EPA
- Partnered with Exchange Network to increase the ability of others to share water quality data
- WQX-Outbound is the format that all Water Quality Portal data is served in.
- First step for a new WQP data partner is mapping data to WQX-Outbound



# Interagency Cooperation

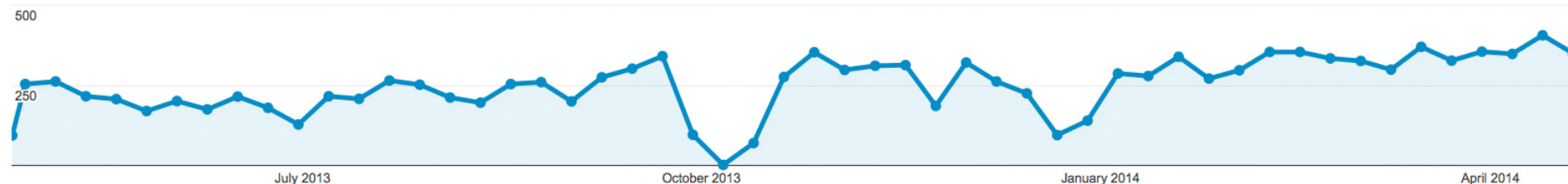
- With the support of the National Water Quality Monitoring Council (**NWQMC**), the Water Quality Portal (**WQP**) integrates publicly available water-quality data from the USGS National Water Information System (**NWIS**) the EPA STOrage and RETrieval (**STORET**) Data Warehouse and the USDA ARS **STEWARDS** database



# Success of the WQP

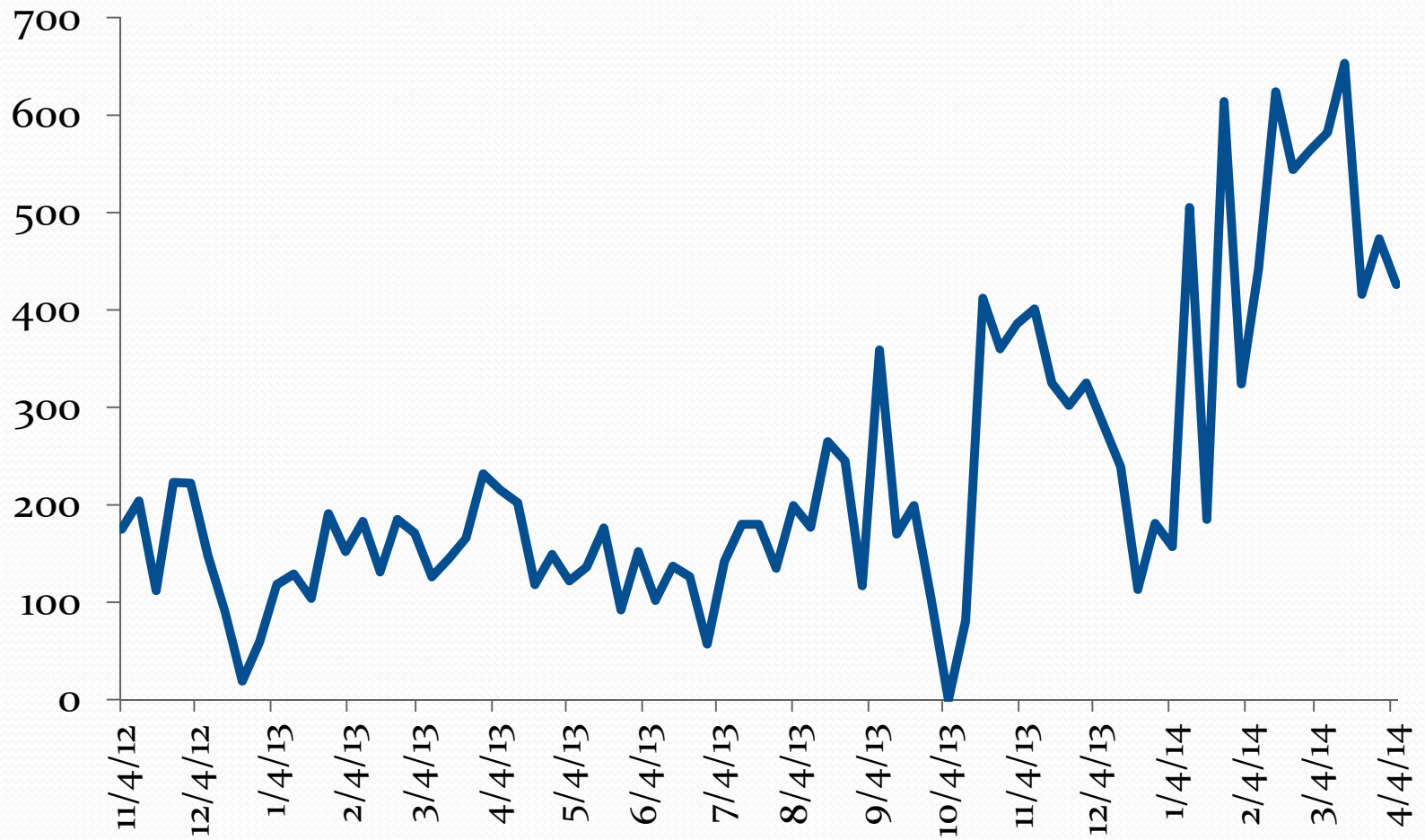
- WQP launched in April 2012
  - 50-100 visits per weekday
  - Over 10,000 unique Visitors
  - 3000-5000 downloads per day from **web services**
  - Recently added USDA Agricultural Research Service STEWARDS database
  - Steady increase in visits and actual use in starting in Fall 2013

Number of Visits to Portal per Day April 2013-April 2014

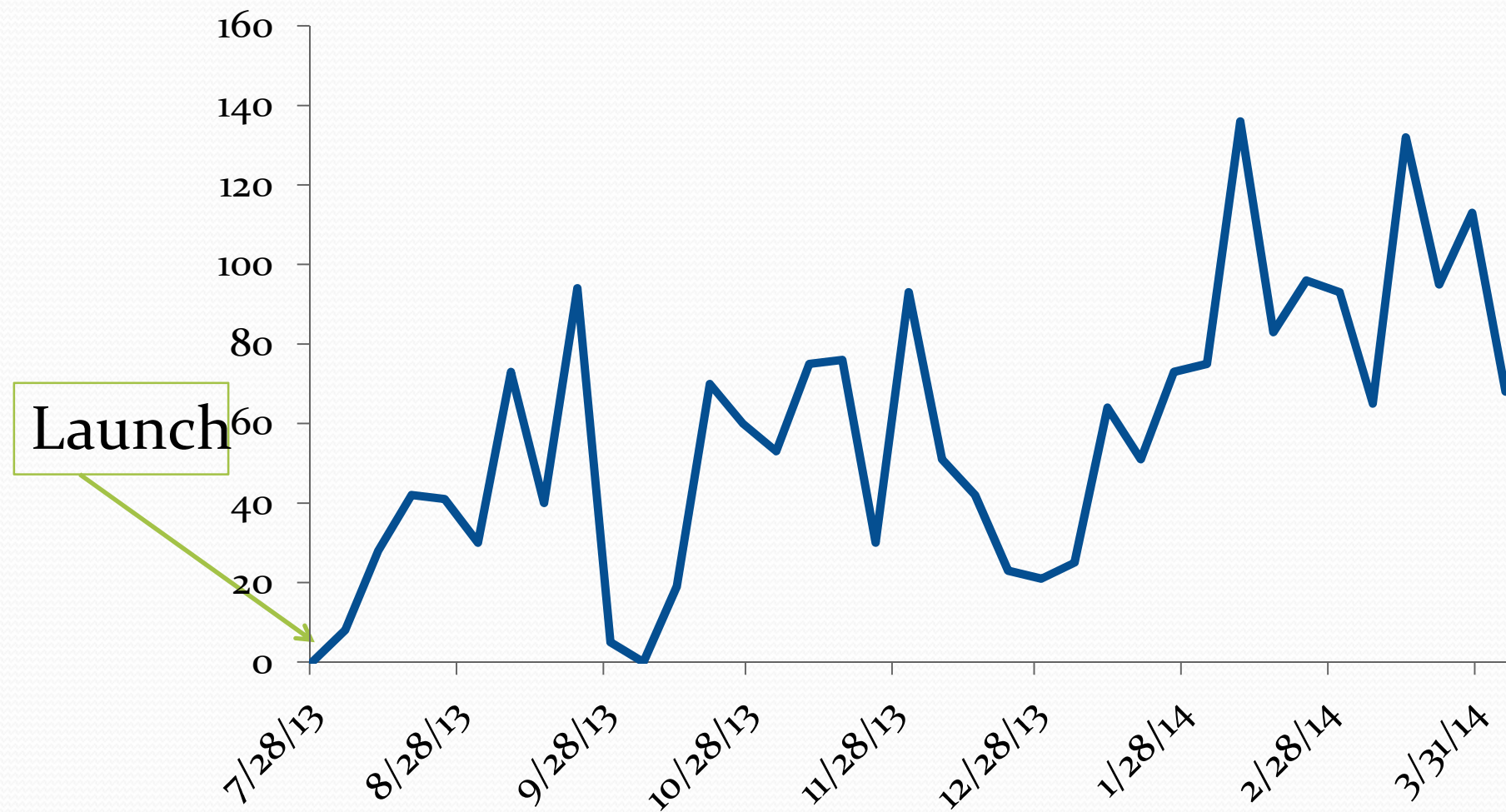




# Weekly downloads from [www.waterqualitydata.us/portal.jsp](http://www.waterqualitydata.us/portal.jsp)

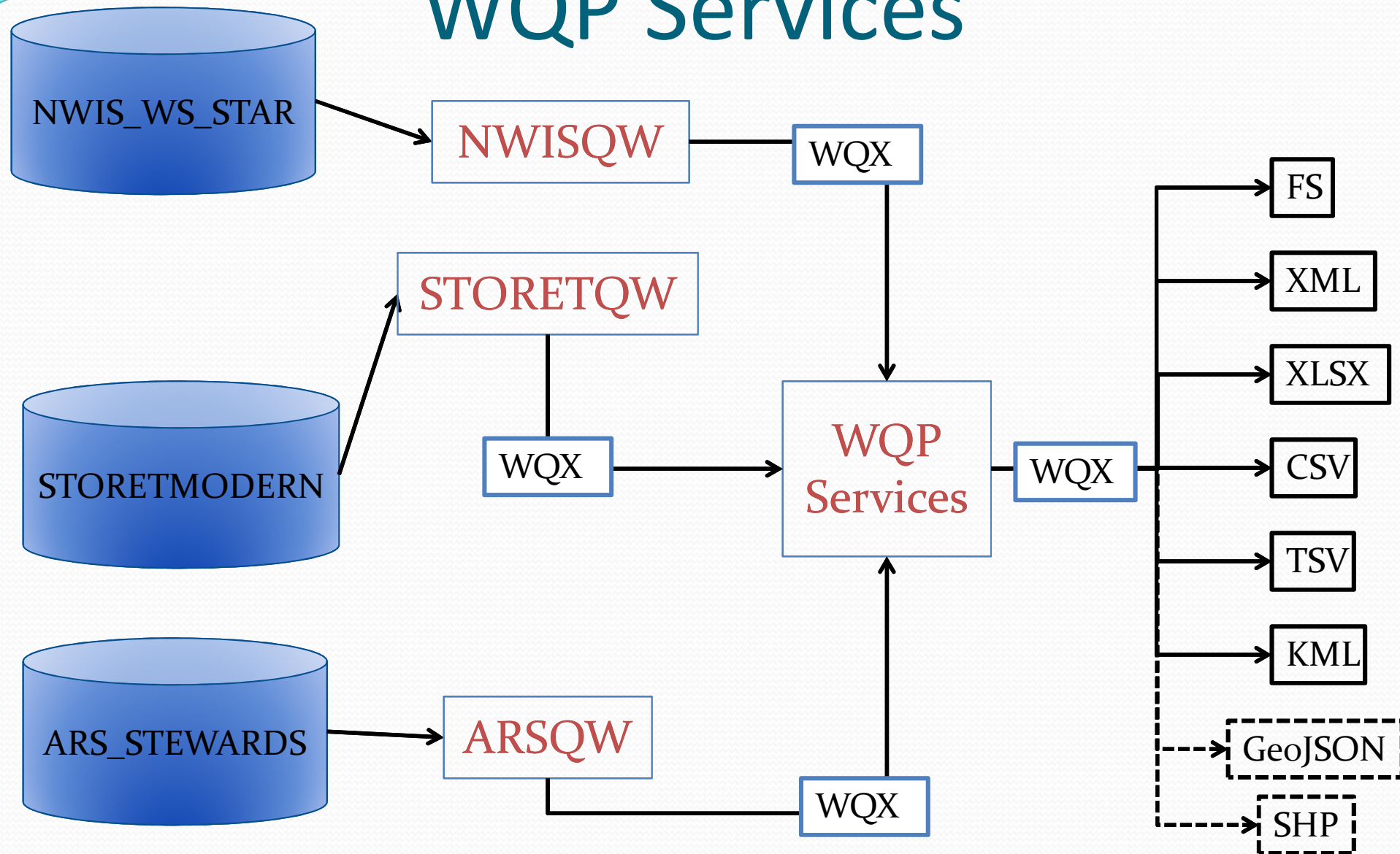


## Total Weekly Map Create events





# WQP Services



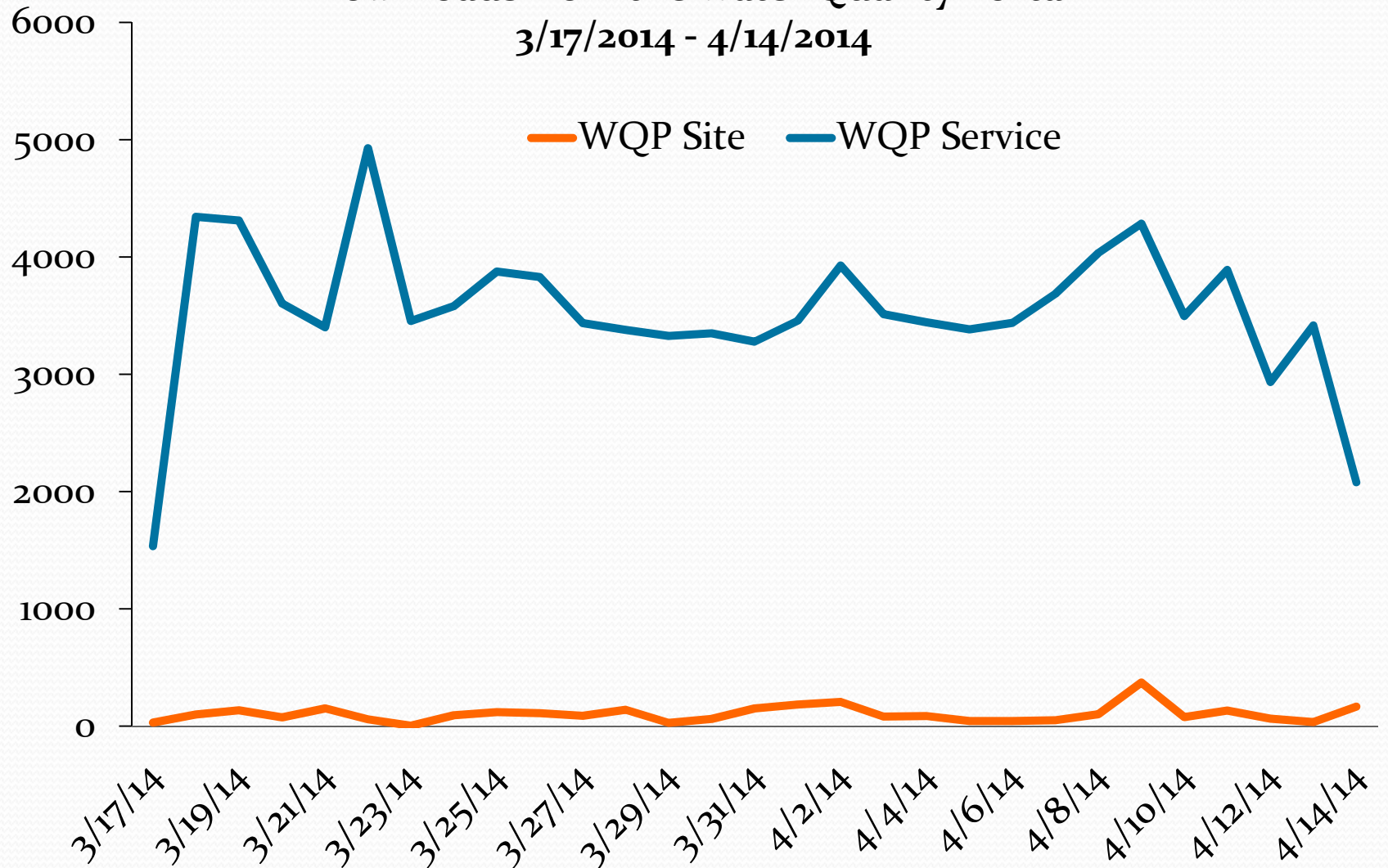
# Benefits of WQP Web Services

- Fairly low entry and use requirements
  - Part of REST utility is by using URL
- Provides an easy way to access data and bypass the WQP form interface
- Easy to follow set-up instructions in Web Service User Guide
- Increases ability of others to call data for analysis
- No throttling or restriction of data access
- Simple to extend to other formats

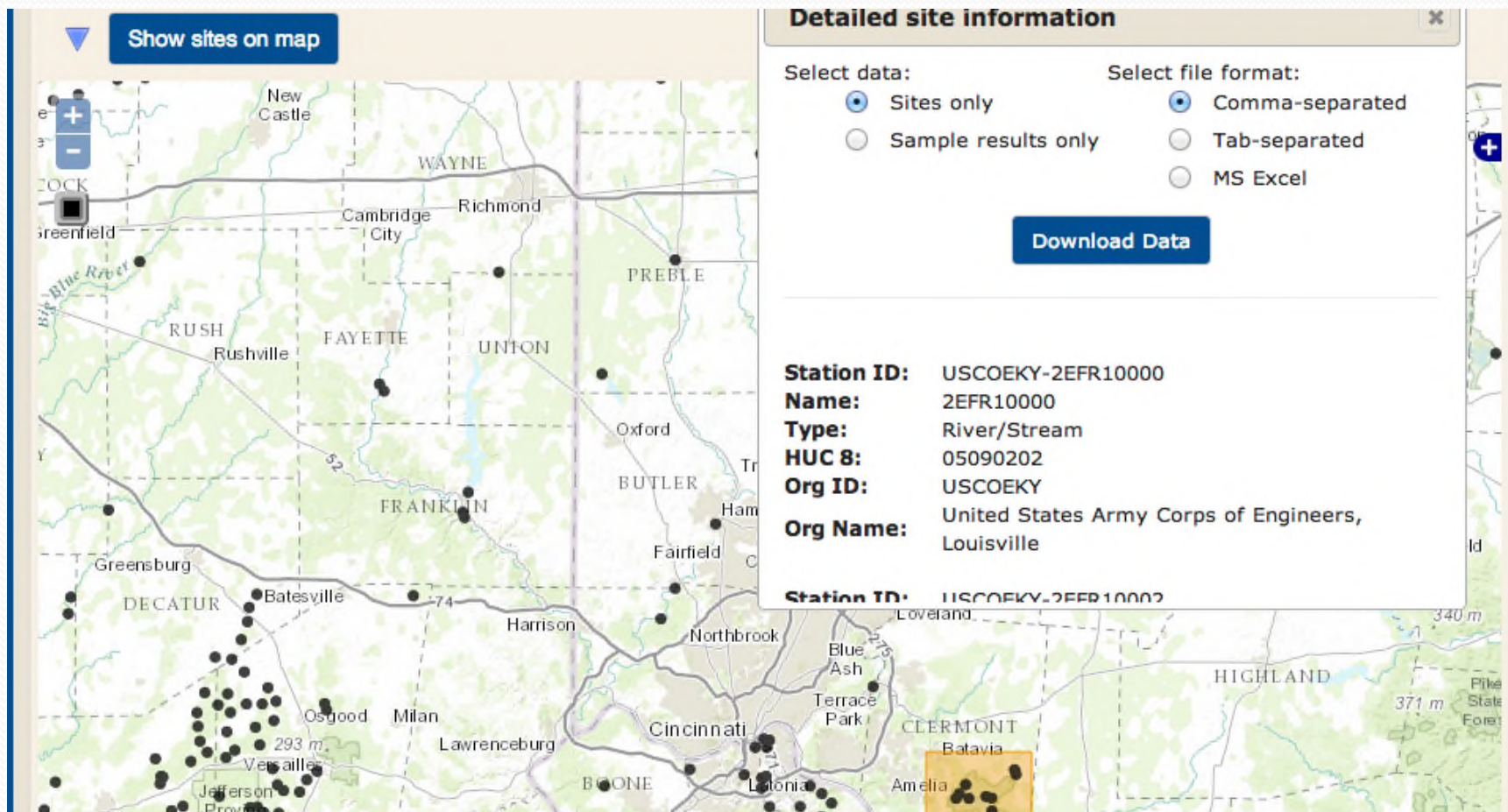


## Downloads from the Water Quality Portal

3/17/2014 - 4/14/2014



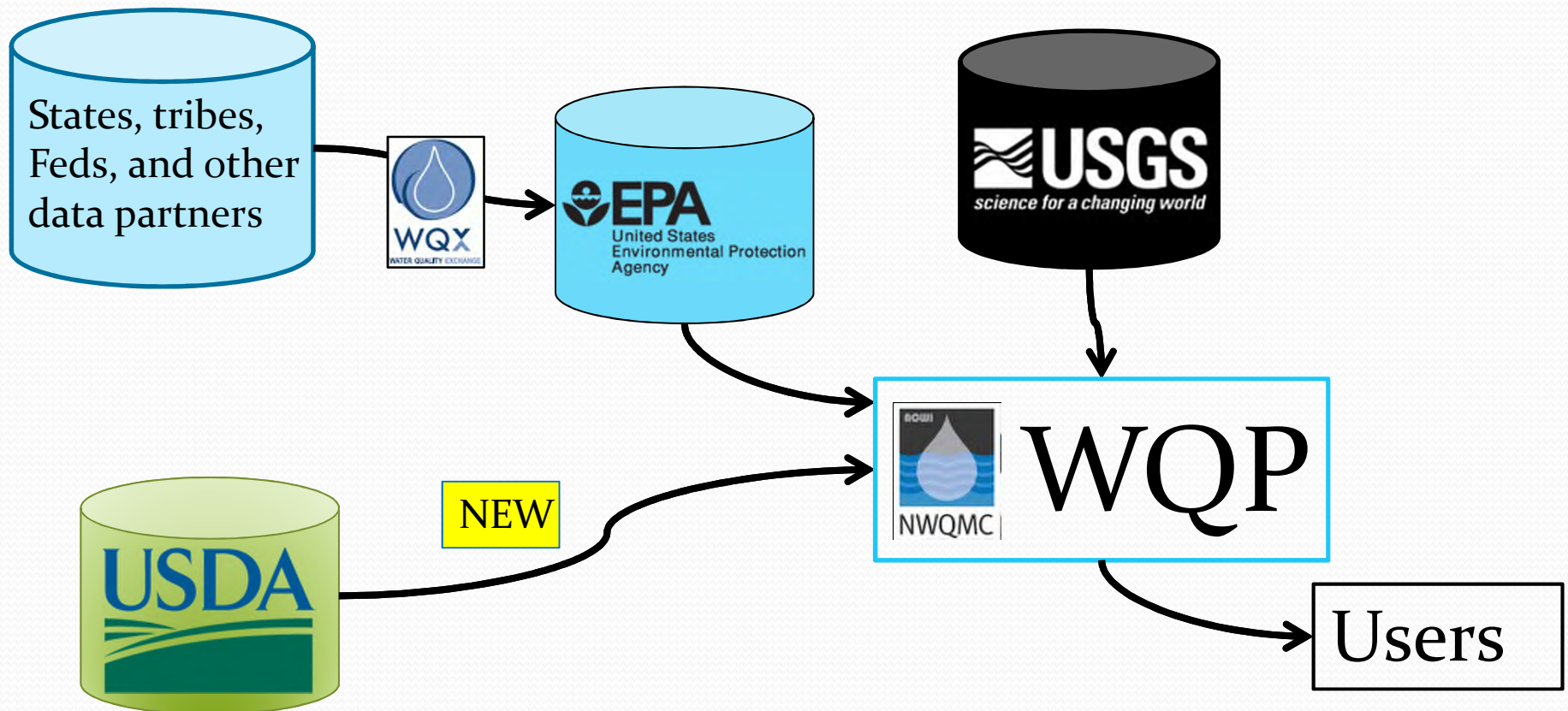
# Map Interface



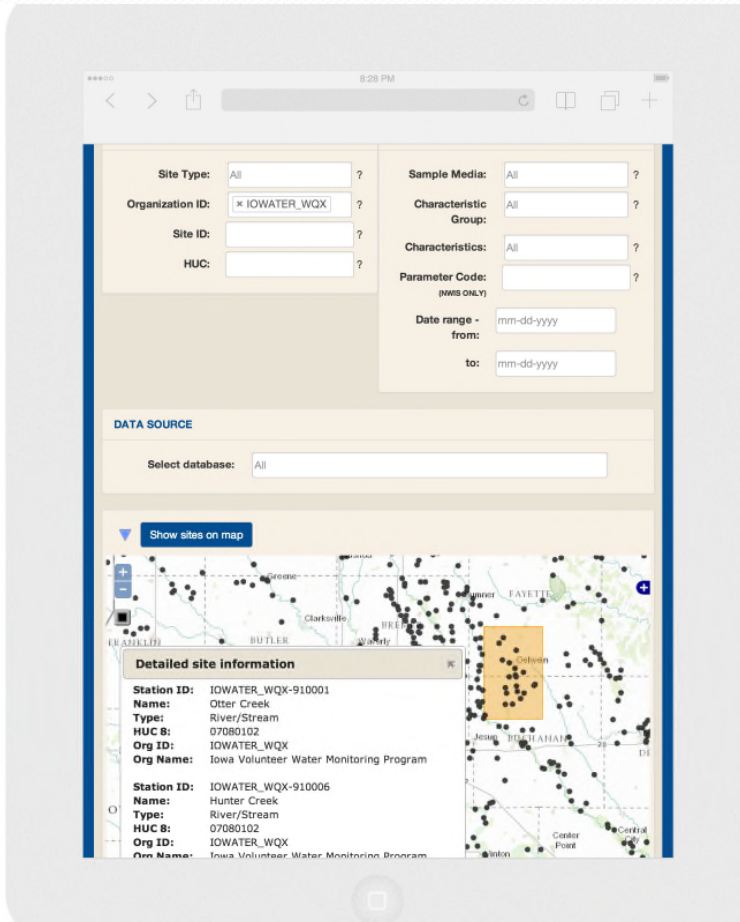


# Addition of USDA STEWARDS

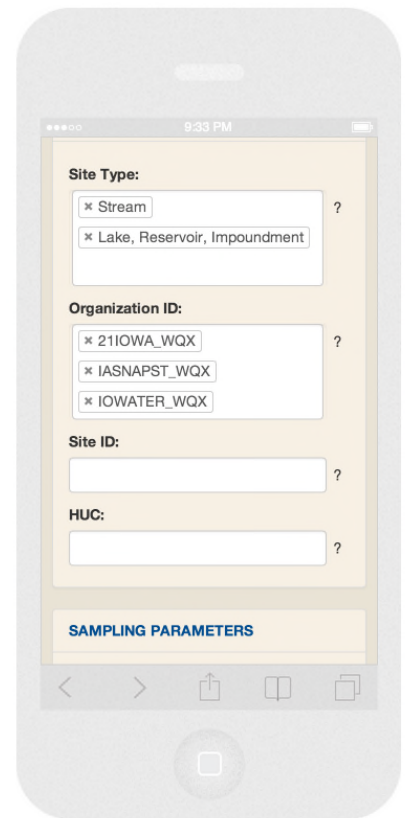
- USDA Agricultural Research Service STEWARDS
  - Required significant re-architecture
  - Improves long-term maintainability of codebase



# Responsive Design

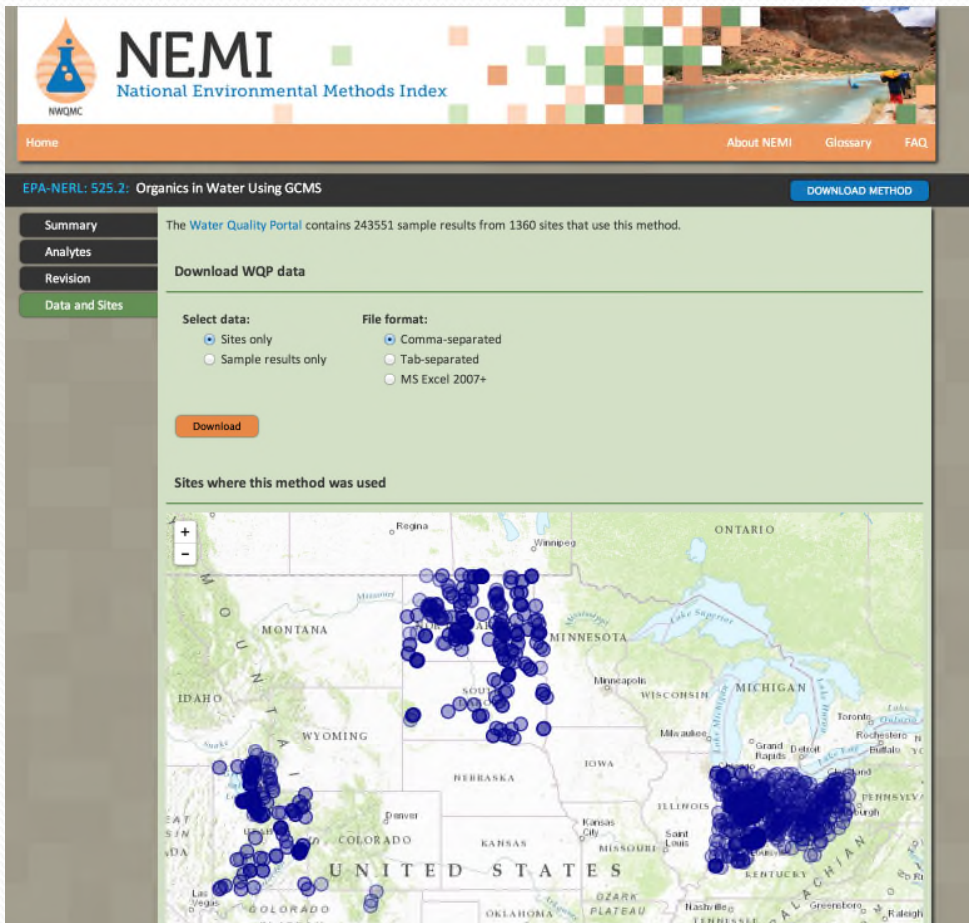


Water Quality Portal works on any device with a modern web browser





# NEMI Integration



The screenshot shows the NEMI website interface. The header includes the NEMI logo and navigation links: Home, About NEMI, Glossary, and FAQ. The main content area displays the title "EPA-NERL: 525.2: Organics in Water Using GCMS" and a "DOWNLOAD METHOD" button. Below this, there is a section for "Download WQP data" with options for "Select data" (Sites only, Sample results only) and "File format" (Comma-separated, Tab-separated, MS Excel 2007+). A "Download" button is present. At the bottom, a map titled "Sites where this method was used" shows sampling locations across the United States, with a high concentration of sites in the central and eastern regions.

- Over 50 million WQP results matched to NEMI methods
- NEMI calls WQP web services
- Generates maps on the fly from GeoJSON
- WQP data downloadable from NEMI

# Portal Next Steps

- *Education and outreach:*
  - Promote the use of WQP and web services
  - Help advertise user-developed tools which utilize the Portal web services
- *Expand data types and formats:*
  - Serve out biological, habitat, metrics, index
  - Explore continuous monitoring or sensor data
  - Serve more data, such as NEMI links and metadata

## *Enhance geospatial capabilities:*

- Develop an OGC-compliant web map service
- Integrate the mapping interface with the National Hydrography Dataset (NHD) *Plus* flow volume and direction attributes
- Take advantage of in-development NWIS mapping tools for Gage information.



# Portal Next Steps

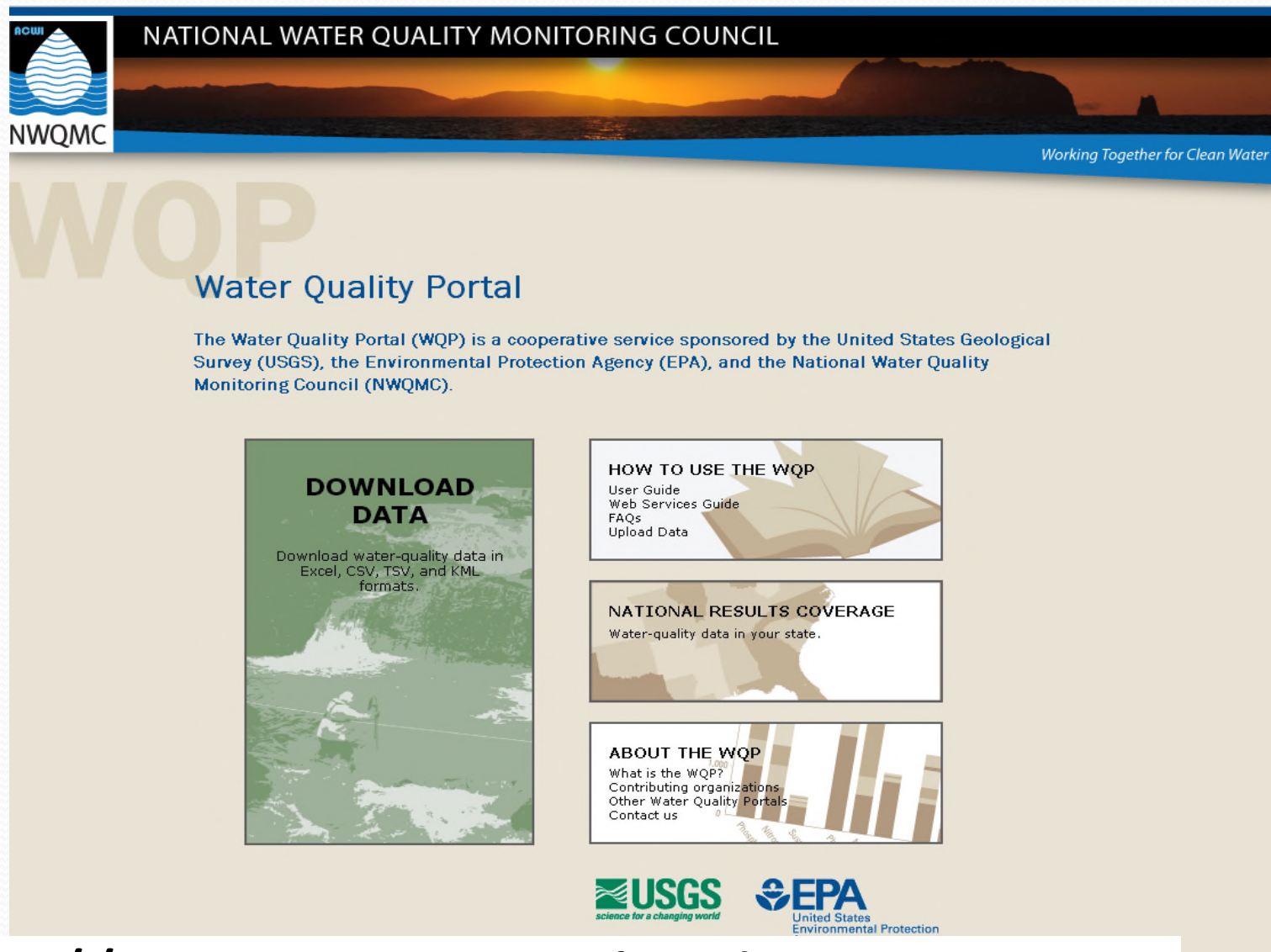
- *Examine opportunities to improve data quality*
  - Identify common issues in data quality
  - Develop dynamic reporting mechanism to increase visibility of data issues so that they can be fixed
- *Add new data sources:*
  - Identify new data partners
  - increasing state data contributions
- *Enhance Discoverability*
  - Build summary pages for collections of data
    - HUC
    - Organization
    - State/County
  - Make WQP data visible to search engines

# Come visit us at our booths

- Charles Kovatch
  - Kovatch.charles@epa.gov
  - 202-566-0399
- Jim Kreft
  - jkreft@usgs.gov
  - 608-821-3919
- <http://www.waterqualitydata.us>



# Come visit us



The screenshot shows the homepage of the National Water Quality Portal. At the top, there is a header with the NWQMC logo on the left, which includes a stylized water drop and the text "NWQMC". To the right of the logo, the text "NATIONAL WATER QUALITY MONITORING COUNCIL" is displayed. Below this, a banner image shows a sunset over a body of water with mountains in the background. The tagline "Working Together for Clean Water" is visible in the bottom right of the banner.

## WQP Water Quality Portal

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC).

### DOWNLOAD DATA

Download water-quality data in Excel, CSV, TSV, and KML formats.

### HOW TO USE THE WQP



- User Guide
- Web Services Guide
- FAQs
- Upload Data

### NATIONAL RESULTS COVERAGE

Water-quality data in your state.

### ABOUT THE WQP

- What is the WQP?
- Contributing organizations
- Other Water Quality Portals
- Contact us

<http://www.waterqualitydata.us>